CLAIMS

1. A method for protecting a thiol group in a protein having a free cysteine residue, which comprises adding a compound which has a disulfide bond in the molecule and exerts substantially no influence on the activity of the protein.

2. A method for inhibiting a polymerization reaction of proteins via thiol groups, which comprises protecting a thiol group in a protein having a free cysteine residue by adding a compound which has a disulfide bond in the molecule and exerts substantially no influence on the activity of the protein.

3. A method for inhibiting modification of a protein, which comprises protecting a thiol group in a protein having a free cysteine residue by adding a compound which has a disulfide bond in the molecule and exerts substantially no influence on the activity of the protein.

4. A method for inhibiting an exchange reaction of a thiol group in a protein with a disulfide bond formed in the molecule or between the molecules of the protein, which comprises protecting a thiol group in a protein having a free cysteine residue by adding a compound which has a disulfide bond in the molecule and exerts substantially no influence on the activity of the protein.

5. The method according to any one of claims 1 to 4, wherein the compound which has a disulfide bond in the molecule and exerts substantially no influence on the activity of the protein is cystine, homocystine, lipoic acid or oxidized glutathione.

6. The method according to any one of claims 1 to 5, wherein the compound which has a disulfide bond in the molecule and exerts substantially no influence on the activity of the protein is cystine.

7. A method for protecting a thiol group in a protein having a free cysteine residue, which comprises adding a compound which has a disulfide bond in the molecule and exerts substantially no influence on the activity of the protein simultaneously or separately from a compound which has a thiol group in the molecule and exerts substantially no influence on the activity of the protein.

8. The method according to claim 7, wherein the compound which has a thiol group in the molecule and exerts substantially no influence on the activity of the protein is cysteine, homocysteine, glutathione or dihydrolipoic acid.

9. The method according to claim 7 or 8, wherein the compound which has a thiol group in the molecule and exerts substantially no influence on the activity of the protein is cysteine.

10. The method according to any one of claims 1 to 9, wherein the protein is a recombinant protein.

11. The method according to any one of claims 1 to 9, wherein the protein is an antibody.

12. The method according to claim 11, wherein the antibody is an $F(ab')_2$ antibody.

13. The method according to claim 11 or 12, wherein the antibody is a monoclonal antibody.

14. The method according to claim 13, wherein the monoclonal antibody has a thiol group in its variable region.

15. The method according to claim 13 or 14, wherein the monoclonal antibody has a free cysteine residue in its variable region.

16. The method according to any one of claims 13 to 15, wherein the monoclonal antibody comprises the amino acid sequences represented by SEQ ID NOs:1, 2 and 3 in the Sequence Listing in its heavy chain hypervariable region, and the amino acid sequences represented by SEQ ID NOs:4, 5 and 6 in the Sequence Listing in its light chain hypervariable region.

17. The method according to any one of claims 13 to 16, wherein the monoclonal antibody comprises a heavy chain variable region comprising the amino acid sequence represented by SEQ ID NO:7 in the Sequence Listing and a light chain variable region containing the amino acid sequence represented by SEQ ID NO:8 in the Sequence Listing.

18. The method according to any one of claims 1 to 17, wherein the protein is produced by using a cell cultured in a serum-free medium.

19. A protein which is obtainable by the method according to claim 18.

20. A pharmaceutical composition which comprises the protein according to claim 19.

21. The pharmaceutical composition according to claim 20, which is an antitumor agent.